

# HP BladeSystem p-Class 1U Power Enclosure

## Installation Instructions

for HP ProLiant p-Class  
BladeSystems



Read Instructions Completely Before  
Beginning Installation Procedures

### Overview

This document provides procedures for installing an HP BladeSystem p-Class 1U Power Enclosure in an HP or Compaq branded rack. The installation and maintenance of this equipment may involve access to high-power circuitry and must be performed by trained service personnel familiar with these conditions. This equipment is intended to be installed in restricted access areas such as locked equipment closets and data centers, such that only trained service personnel are permitted to operate and service the equipment.

### Kit Contents

- Power enclosure
- 1U rack rail kit
- Hot-plug power supply with PDU power cord (quantity varies)
- Power supply blank (quantity varies)
- Management link cable
- Miscellaneous hardware
- This document

**NOTE:** Order the appropriate AC power cord if you are not using the PDU solution to provide power to the equipment.

### Warnings and cautions



**WARNING:** Remove any hot-plug power supplies installed in the power enclosure before loading the enclosure into the rack.



**WARNING:** Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.



**WARNING:** Do not connect the facility AC power source to the enclosure until directed to do so.



**CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Be sure that you are properly grounded (earthed) before beginning any installation procedure.



**CAUTION:** Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.



**CAUTION:** Always use blanks to fill empty spaces in enclosures. This arrangement ensures proper airflow. Using an enclosure without the proper blanks results in improper cooling that can lead to thermal damage.

### Preparing for the installation

**IMPORTANT:** Route the power cords, and if you are using PDUs in your installation, mount the PDUs before installing the rack rails. The AC power connectors do not fit under the power enclosure rack rails once the rails are installed.

**IMPORTANT:** Determine the placement of the power enclosures before installing the rack rails.

Be sure the environment in which you plan to install the system is suitable. Refer to the *HP BladeSystem p-Class System Overview and Planning* white paper and the *HP BladeSystem p-Class Enclosure Installation Guide* on the Documentation CD.

To avoid creating a top-heavy rack configuration, always start in the bottom enclosure in the rack when populating the enclosures in the rack. Connect AC power only to the bays you are populating with power supplies. For example, if you are populating bays 1 and 4, connect the PDU power cords from the PDU to the corresponding AC input power connector on the HP BladeSystem 1U Power Supply Enclosure.

HP recommends installing hot-plug power supplies in a redundant configuration. To implement a redundant configuration, populate one or more of bays 1 through 3 and an equal number of bays 4 through 6 with power supplies. For redundant AC power, bays 1, 2, and 3 must be supplied AC power from a different branch circuit than bays 4, 5, and 6. Each bay must be supplied 200 to 240 VAC, 50 to 60 Hz, single-phase AC power. Ensure that adequate capacity is available on each branch circuit to handle the peak current demands of a fully populated HP BladeSystem 1U Power Supply Enclosure when attached to a fully populated server enclosure.

When deploying the HP BladeSystem 1U Power Enclosure and attached server enclosure into an existing installation, it is necessary to upgrade all management module firmware on all enclosures to the latest version.

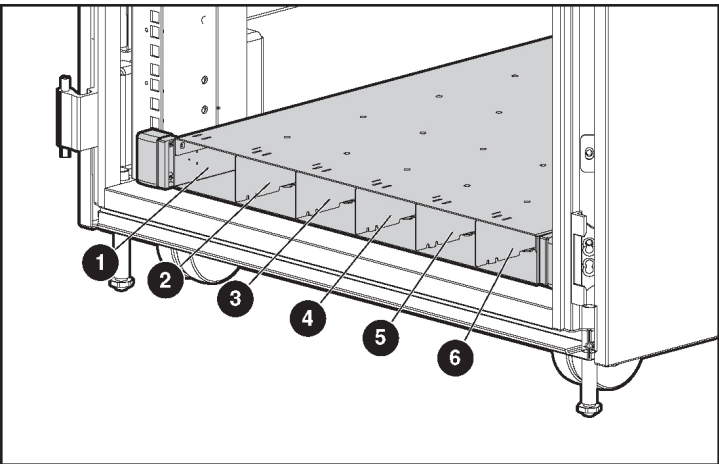
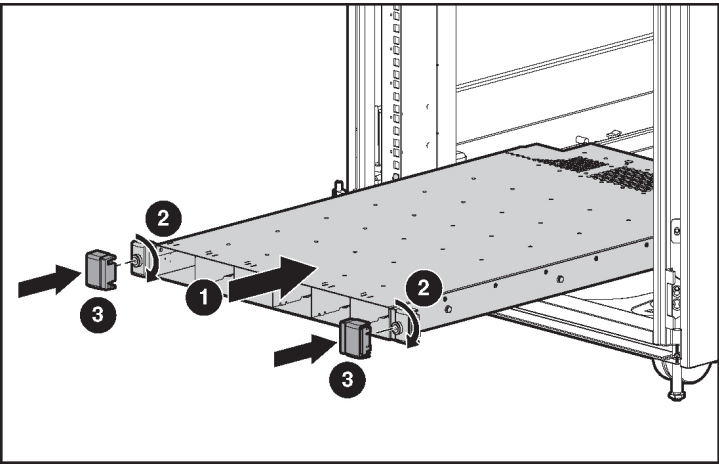
### Installing the power enclosure into the rack



**CAUTION:** Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

The HP BladeSystem p-Class 1U Power Enclosure uses HP 1U Adjustable Toolless Rails. Refer to the installation instructions that are included with the rail hardware kit for detailed installation instructions. Cage nuts are not used with the HP BladeSystem p-Class 1U Power Enclosure.

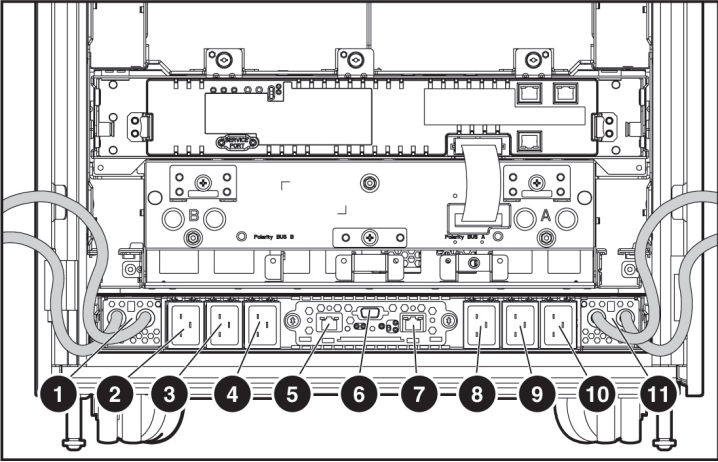
**NOTE:** Power distribution devices (scalable bus bar and mini bus bar) are not required when installing the HP BladeSystem 1U Power Enclosure. The power enclosure is designed to connect directly to one server blade enclosure.



Item	Description	Configuration
1	Power supply bay 1	Bus A
2	Power supply bay 2	Bus A
3	Power supply bay 3	Bus A
4	Power supply bay 4	Bus B
5	Power supply bay 5	Bus B
6	Power supply bay 6	Bus B

If necessary, install the hot-plug power supplies into the power enclosure. For more information, refer to the documentation supplied with the HP BladeSystem 1U Power Supply Option Kit and to the *HP BladeSystem p-Class Enclosure Installation Guide* on the Documentation CD.

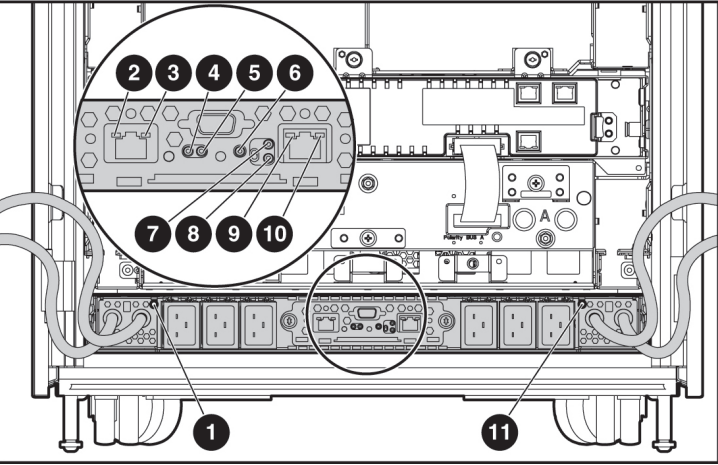
### Identifying HP BladeSystem p-Class 1U Power Enclosure components



Item	Description	Cable Type
1	DC output power connector for bus B	DC power cable
2	AC input power connector for bay 6	PDU power cord
3	AC input power connector for bay 5	PDU power cord
4	AC input power connector for bay 4	PDU power cord
5	Power enclosure management link connector (to enclosure below, if necessary)	RJ-45 management link cable
6	Power management module service port	—
7	Power enclosure management link connector (to server enclosure above)	RJ-45 management link cable
8	AC input power connector for bay 3	PDU power cord
9	AC input power connector for bay 2	PDU power cord
10	AC input power connector for bay 1	PDU power cord
11	DC output power connector for bus A	DC power cable

### HP BladeSystem p-Class 1U Power Enclosure LEDs

Use the following figure and table to identify LED locations and functions.



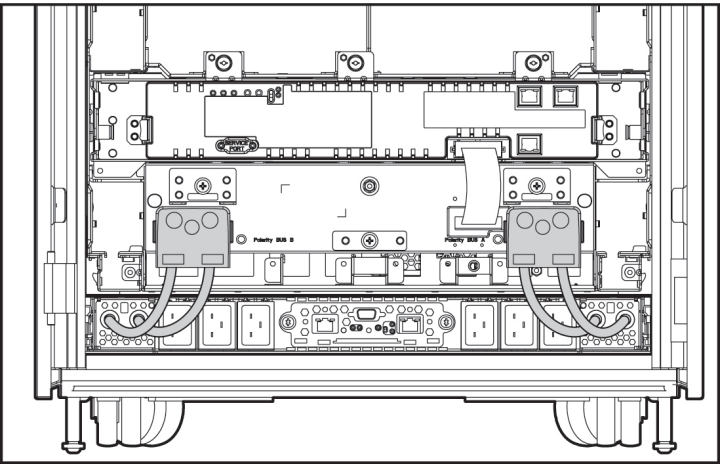
Item	LED Description	Status
1	Bus B DC power LED	Off = No DC power available Green = DC power available
2	Management link activity LED	Amber flashing = Network activity Off = No link or activity
3	Management link LED	Green = Network linked
4	Power LED	Off = No link Off = No power Green = Management module is powered up
5	Fault status LED	Red flashing = Fault process activity Off = No fault process activity
6	UID LED	Blue = Identified Off = No active remote management
7, 8	Power zone LEDs	See note <sup>1</sup>
9	Management link activity LED	Amber flashing = Network activity Off = No link or activity
10	Management link LED	Green = Network linked
11	Bus A DC power LED	Off = No link Off = No DC power available Green = DC power available

<sup>1</sup> Power zones are automatically configured based on the location of the enclosures in the rack and the management link connections. Disregard the power zone switch and LEDs on the HP BladeSystem 1U Power Enclosure.

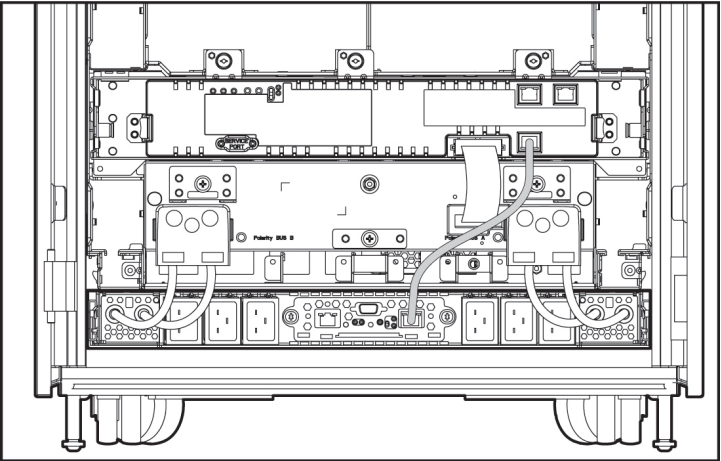




Connecting the HP BladeSystem p-Class 1U DC power cable to the server blade enclosure



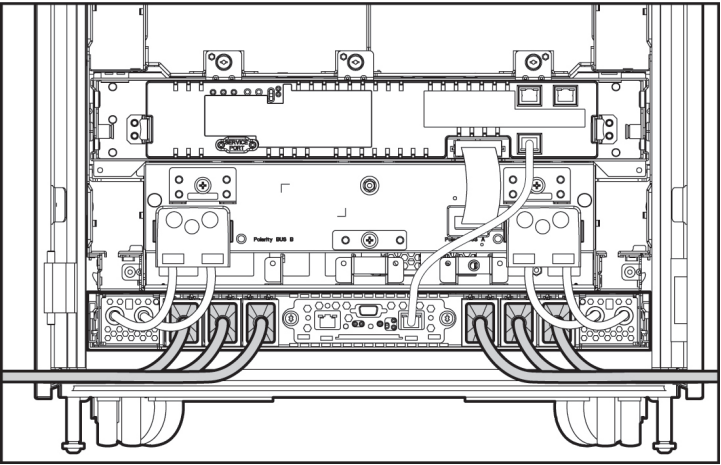
Connecting the HP BladeSystem p-Class 1U Management Link Cable



**IMPORTANT:** In installations configured with the HP BladeSystem 1U Power Enclosures and power supplies, the power zones are calculated dynamically using the topology information from all the connected enclosures. Disregard the power zone switch and LEDs on the HP BladeSystem 1U Power Enclosure.

**NOTE:** If deploying the HP BladeSystem 1U Power Enclosure into a rack installation with other HP BladeSystem Enclosures, the enclosures can be connected to each other with managementlink cables to identify rack topology. Refer to the *HP BladeSystem p-Class Enclosure Installation Guide* for additional information.

Connecting PDU power cords to the enclosure



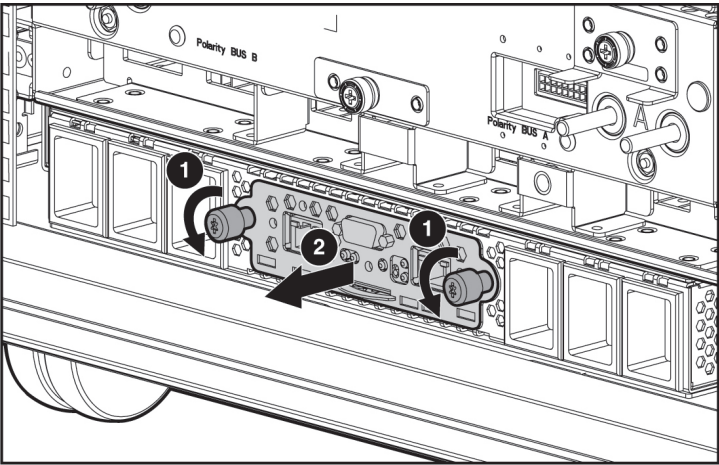
1. Ensure that the facility AC power is off or has been disconnected from the PDUs
2. Connect the PDU power cords to the AC power input connectors located on the rear of the power enclosure.
3. Connect the PDU power cords to the PDUs.
4. Restore facility AC power to the PDUs.

Configuring the Dynamic Power Saver

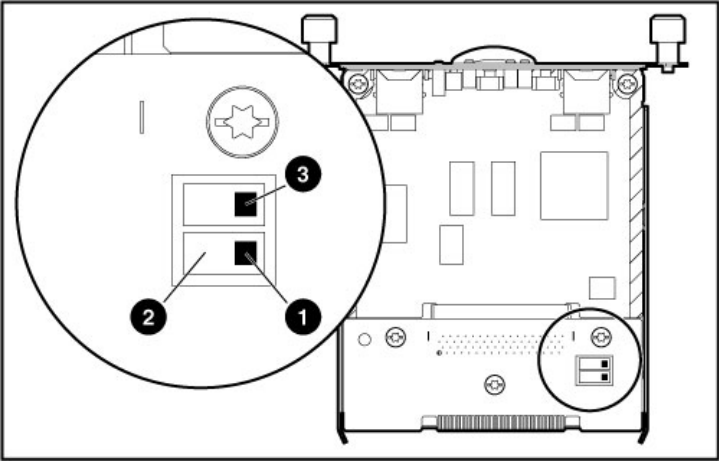
**NOTE:** The Dynamic Power Saver configures the available power supplies to operate at maximum efficiency.

When the Dynamic Power Saver feature is enabled, the total enclosure power consumption is monitored in real time. Power supplies are placed in a standby condition when the power demand from the server enclosure is low. When power demand increases, the standby power supplies instantaneously deliver the required power. This enables the enclosure to operate at optimum efficiency.

To configure the Dynamic Power Saver, remove the power enclosure management module.



Use the following figure and table to identify the Dynamic Power Saver switch location and function.



Position	Function
1	Dynamic Power Saver disabled (default)
2	Dynamic Power Saver enabled
3	Reserved (off=default)

Preparing the system for operation

To prepare for operation, complete the following items:

- Complete all server blade enclosure installation procedures.
- Complete all system cabling.
- Power up the system.

Refer to the *HP BladeSystem p-Class Installation Guide* on the Documentation CD and the documentation that ships with the HP BladeSystem 1U Hot-Plug Power Supply.

The installation is complete.

Regulatory compliance notices

Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Federal Communications Commission notice

Class A equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian notice

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union regulatory notice

This product complies with the following EU Directives:

- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) which are listed on the EU Declaration of Conformity issued by Hewlett-Packard for this product or product family.

This compliance is indicated by the following conformity marking placed on the product:



This marking is valid for non-Telecom products and EU harmonized Telecom products (e.g. Bluetooth).



This marking is valid for EU non-harmonized Telecom products.

\*Notified body number (used only if applicable—refer to the product label)

Japanese notice

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BSMI notice

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Korean class A notice

Class A equipment

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Power cord statement for Japan

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同梱された電源コードは、他の製品では使用出来ません。